Table 16

Phenotypes of Kernels

Culture	Table 3 reference	number of Cors.	Uniformly Pigmented Bt Wx	Uniformly Pigmented Bt wx	Uniformly Pigmented bt Wx	Uniformly Pigmented bt wx	Colorless with spots of pigment Bt Wx	Colorless with spots of pigment Bt wx	Colorless with spots of pigment bt Wx	Colorless with spots of pigment bt wx	Colorless Bt Wx	Colorless Bt wx	Colorless bt Wx and wx	Total	% Recombination Spun - Wx
7309 A	A, Table 3	5	257	36	13	2	36	235	3	18	21	23	579	1223	12.8
7308 A-4 B-2, B-4	B, Table 3	5	355	53	-	-	37	331	-	-	0	1	-	777	11.8
7308 B-1	B, Table 3	3	92	22	7	3	12	121	3	7	8	15	219	509	14.9
7563 A, B	B, " 3	17	141	1419	20	124	1484	121	93	10	132	147	3121	6,812	8.5
" A-2	" " "	2	96	84	7	3	80	85	2	2	6	13	324	702	0
7546	" "	12	650	76	45	5	81	633	10	36	55	70	1464	3,125	11.2
7546-8	" " "	2	44	28	3	1	113	111	3	7	13	15	306	644	
7546-9	" " "	1	46	9	8	0	17	75	2	4	7	5	179	352	
7573 A	" " "	5	183	21	14	2	236	350	17	21	36	34	739	1653	
7573 B	" "	3	159	13	9	2	8	137	0	10	17	9	299	663	6.8
7576	" "	2	109	19	8	2	9	138	0	6	7	14	241	553	10.3
7570 B		12	60	683	6	84	715	66	83	6	96	95	1492	3,386	8.1

Table ~~I~~ A A+B A_2 m1 Bl/a_2 bt Wx spun/un + 9 x a_2 bt/a_2 bb, un/un of no spun

		Uniform Pale Bl		bt		Colorless with spots of A_2 pigment Bl		bt		Colorless Bl		bt		Totals		odds.
		Wx	un	Wx	un	Wx	un	Wx	un	Wx	un	Wx	un	Wx and un		
7547A-1	tiller-1 ✓	1	21	0	1	12	1	2	0	1	2	23		64		
" A-2	1st ear, main stalk	11	75	0	4	101	7	11	1	9	8	184		411		2 A_2 Bl
" A-2	tiller ear	5	73	0	3	78	4	8	0	10	8	142		331		
Totals		17	169	0	8	191	12	21	1	20	18	349		806		
		Uniform dark pigmented														
7547C-2		0	25	0	2	28	2	1	0	2	1	49		110		
Totals		17	194	0	10	219	14	22	1	22	19	398		916		

no Spun Wx = 17
no Spun un = 204
Spun Wx = 241
Spun un = 15
Total = 477
6.7% recombination

Table 18 B

		Uniform pigmented Bl		bt		Diffuse-reacting Bl		bt		Colorless, spots of A_2 pigment Bl		bt		Colorless Bl		bt	Totals
		Wx	un	Wx	un	Wx	un	Wx	un	Wx	un	Wx	un	Wx	un	Wx and un	
7547A-1	tiller-2	12	43	0	4	11	0	0	0	21	1	0	0	2	1	89	184
✓ " A-3	1st ear, main stalk	11	72	3	13	3	1	0	0	67	1	9	0	13	10	145	348
" A-5	2d ear "	17	9	0	2	0	0	0	0	1	0	0	0	1	1	17	48
Totals		40	124	3	19	14	1	0	0	89	2	9	0	16	12	251	580
7547B	tiller	12	41	0	1	7	0	0	0	17	1	1	0	2	1	60	143
" C	main stalk ear	79	89	7	6	6	1	2	0	3	0	0	0	5	1	161	360
Totals		91	130	7	7	13	1	2	0	20	1	1	0	7	2	221	503
Grand Totals		131	254	10	26	27	2	2	0	109	3	10	0	23	14	472	1083

3.2% recombination

Table 18 C

		Uniform Bl		pale bt		Colorless with spots of A_2 pigment. no pale spots Bl		bt		Colorless with spots of A_2 pigment and pale areas Bl		bt		Colorless Bl		bt	total
		Wx	un	Wx	un	Wx	un	Wx	un	Wx	un	Wx	un	Wx	un	Wx + un	
7547A-1 + 7538-3	2d ear main stalk a_2 bt/a_2 bt un/un 1 spun.	33	27	4	6	36	1	2	0	0	30	0	1	6	8	131	285

17 ?

Work Table - Delayed action spm: Plants entered in Table 2 B, C, D; Table 3 A, B

Plant Number	Uniformly Pigmented BE Wx	Uniformly Pigmented BE sy	Uniformly Pigmented bt Wx	Uniformly Pigmented bt sy	Diffuse-mottled BE Wx	Diffuse-mottled BE sy	Diffuse-mottled bt Wx	Diffuse-mottled bt sy	Colorless, spots of pigment BE Wx	Colorless, spots of pigment BE sy	Colorless, spots of pigment bt Wx	Colorless, spots of pigment bt sy	Colorless BE Wx	Colorless BE sy	Colorless bt Wx and sy	Totals	Records.
Table 2 B, C, D.																	
7309A-4 E-2																	
7309A-5 I																	
7309A-6 I	117	108	10	9	1	11	0	1	0	6	0	0	15	4	229		
" A-9 I	74	23	7	0	0	17	0	1	1	51	0	5	3	5	198		
~~7313B-3 I~~																	
7546-2 I	41	40	2	6	0	0	0	0	0	3	0	0	6	3	87		
7570A-1 I	7	3	0	0	1	2	0	0	0	3	0	2	2	1	20		
" -1 II	22	10	1	1	0	2	0	0	0	3	0	1	2	3	23		
" A-4 I	14	16	5	4	0	1	0	0	0	0	0	1	2	3	47		
7573A-1 I	47	30	3	4	0	4	0	1	40	53	4	1	3	8	162		
Table 3, A + B, C, D																	
7560-3 I	70	56	2	4	7	15	0	1	12	10	0	1	4	6	185		
" " II	33	44	4	3	0	0	0	0	0	1	0	0	3	4	85		
7561-2 I	98	78	11	7	8	0	0	0	0	0	0	0	11	10	180		
" 2 II	92	101	11	10	1	0	0	0	2	1	0	0	14	12	187		
7572-4 I	108	-	10	-	13	-	0	-	15	-	0	-	16	-	140		
7572-5 I	58	64	7	5	0	0	0	0	1	0	0	0	6	8	121		
" " II	94	47	9	4	0	7	0	0	4	29	0	2	2	13	176		
7313A-1	123	-	5	-	0	0	0	-	26	-	1	-	6	-	164		
" A-2	256	-	11	-	0	-	0	-	6	-	2	-	16	-	234		
" B-1 I	53	22	6	2	0	0	0	0	5	18	0	1	3	2	121		
" B-2 I	195	-	15	-	3	-	0	-	2	-	2	-	22	-	226		
" B-3 I	81	54	6	3	0	0	0	0	10	13	0	1	2	2	135		
7547A-5 II	17	9	0	2	1	0	0	0	0	0	0	0	1	1	17		
" B II	12	41	0	1	7	0	0	0	17	1	2	0	2	1	60		
" C① I	76	89	7	6	6	1	2	0	3	0	0	0	5	1	161		

Table 25

A.

Spm Constitution and location.	No. of ears.	Uniform, Pigmented BT	Uniform, Pigmented bt	Spots of pigment in colorless background BT	Spots of pigment in colorless background bt	Colorless BT	Colorless bt	Total	% recombinants
Wx+/ wx Spm	12	650 76	45 5	81 633	10 36	55 70	1464	3125	11.2
Wx/Wx / Spm. (7546-6)	3	258 -	12 -	207 -	17 -	34 -	478	1006	
~~Wx+/ wx Spm~~ 2 Spm (7546-8)	2	44 28	3 1	113 111	3 7	13 15	306	644	
Wx++/ wx Spm Spm (7546-9)	1	46 9	8 0	17 75	2 4	7 5	179	352	

B.

7546-1	I × 7538-3	43	4	1	0	39	78	1	1	7	6	190	370
" -2	II × " -13	32	3	7	1	48	105	4	3	5	6	198	412
" -7	III × " -14	36	4	2	1	22	49	1	2	4	3	105	229
	Totals	111	11	10	2	109	232	6	6	16	15	493*	1011

For change in spur action in 7538 spur plants. Crossed to $a_2{}^{24-1}$ class I, no spur 4.

7538 (1) to
7538 (3) to
7545 C (2) I
7584 A (3) I
7586 A (3) I
7586 B I
7603 C (4) I
7616 A (4) I

7538 R (4) t-4 to
7584 A (7) I
7586 A (2)

7538 (9) to
7615 B (1) I
7616 B (1) I
7616 C I

7538 (10) to
7616 A (3) I
7616 B (4) I

7538 (12) to
7584 A (3) I
7616 A (3) II

7538 (13) to
7586 A (4) I
7614 E (2) II see

7538 (14) to
7586 A (1) I
" A (2) II
" A (7) t-2
7614 E (1) II
7616 B (5) I

pale. early

7547A	W+Spm/ms+ From 7312⑤ ✓
7556	W++/msSpm (+1 small?) " 7308 D① ✓
7564	W+Sp/msSpm " " D①$^{E-1}$ ✓
7565	W++/msSpm " " D① ✓
7571	" " " " " D②$^{E-1}$ ✓
7578	From 7467①^{E}
7579	" " ⑥^{E}
[7580 pale-early]	" 7470A⑤
7581	" " A⑤^{E}
7582B	W++/msSpm (from 7312⑥)
7583AB	W++/msSpm from 7308 D② ✓
7584B	From 7305C ④$^{E-2}$
7585	W++/msSpm From 7308 D① ✓
7586	From 7463 E⑤^{I}
7587	" " E⑤$^{E-2}$

pale. early

7559A	
7601	W++/msSpm From 7308 D①$^{E-2}$ ✓
7602	" 7308 D②$^{E-1}$ ✓
7603	" 7320C③^{I}
7605	" 7308 D①$^{E-1}$ ✓
7607	" 7308 D① ✓
→	→ .
7608	" 7317C④^{E}
7609	" " B②^{II}
7610	" 7308D①$^{E-1}$ ✓
7611	" 7322A①
7612	" " A②
7613	" " A④

Wt + lm spm · active	Wt Spm lm +	Wt + lm spm + 1 spm	Wt + lm spm + 2 spm	T Wt + lm + 1 spm	T Wt + 2 spm
1957	1958				
7306 A - ①	~~7547~~	7306 B - ②	7306 B - 1	7306 - ③	7560 - 4
" - ④	7560 - 1	7307 B - ③ ④		7560 ③	
" - ⑤	" - 5	7308 B - ③		" ⑥	
" - ⑥	7561 ③ ④ ⑤	7573 A ② ③ ④ ⑤		7563 B ①	
7307 A ① ③ ④ ⑤ ⑥	7562 ① ② ③	7556		7546 ⑧ [⑨]	
" B - ① ②	7777 A ① ② ④				
7572 ① ② ③ ⑤ ⑥ ⑦	" B ① ②				
7312 ⑤	7547 A - ① ② ③				
	" B ① ②				
7309 A ③	7563 A ① ③ ④ ⑤				
	" B ① ②				
7308 A ④ ⑤	7546 ① ② ③ ④ ⑤				
" B ① ③ ④	⑨ ⑩ ⑪ ⑫				
7573 B ⑥					
7588 A BCD					
7585 B					
7566 A					
7564					
7583 A					

Figure 7. Combinations of states.

		Original		5700A		5713B-2		5714F		5715A		5718		5719A-1		5719A-2		5996-4		5999		5720		wo spu.	all plants spu non-pigmented plants
		P	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V	C	V		
5720	C											+		+	+							+	+	+	+
	V	+	+									+	+	+	+								+	+	
5999	C			+								+		+	+					+	+			+	+
	V											+		+	+						+			+	
5996-4	P											+		+	+			+	+					+	+
	V											+		+					+					+	
5719A-2	P		+									+	+	+	+	+	+							+	+
	V		+	+								+	+	+			+							+	
5719A-1	P		+	+	+	+	+	+	+	+		+	+	+	+									+	+
	V		+	+		+		+				+	+		+									+	
5718	P	+	+	+	+	+	+	+	+	+		+	+											+	+
	V		+										+											+	
5715A	P																							+	
	V									+														+	
5714F	P							+	+															+	+
	V								+															+	
5713B-2	P					+	+																	+	+
	V						+																	+	
5700A	P		+	+	+																			+	+
	V				+																			+	
Original	P																							+	
	V		+																					+	

P = pale plant
V = variegated plant
C = non-pigment plant, state 5720 with wo spu

For Part III

Figure 2

KEY TO PROGENY TESTS: TRANSPOSITION OF Spm IN THE a_1^{m-1} CULTURES

1. Progeny of self-pollinated ear of plant 6629A-4 (Y Spm/y +). Page

2. Progeny of plant 6629A-8 (Y Spm Spm/y + +) = culture 6676 Table 31

3. Progeny of plant 6629A-2 (Y Spm Spm/y + +, plus 2 non-linked Spm)

   Tiller ear = culture 6667, Table 32
   First ear, main stalk = culture 6668, Table 34

4. Progeny of plant 6667F-11 (Y Spm Spm/y + +) = culture 6884, Table 33

5. Progeny of plant 6668C-6 (Pr +/pr Spm) = culture 6877, Table 34

6. Progeny of plant 6668C-3 (Wx +/wx Spm plus 1 non-linked Spm), = culture 6872, table 35

7. Progeny of plant 6872A-12 (Wx Spm/wx +) = culture 7285, tables 36 to 38

8. Progeny of second ear, main stalk of plant 7285A-1 (Wx Spm/wx +) = culture 7330, Tables 39 to 41

9. Progeny of ear of tiller of plant 7285A-1 (Wx/wx; 1 Spm) = culture 7331, table 42

10. Progeny of second ear, main stalk ofplant 7285A-2 (Wx Spm/wx +) = culture 7332, tables 39 to 41

11. Progeny of tiller ear of plant 7285A-7 (Wx Spm/wx +) = culture 7333, tables 39 to 41

13. Progeny of first ear, main stalk, of plant 7285B-6 (Wx Spm/wx +) = culture 7334, tables 39 to 41

14. Progeny of plant 6666C-7 (See table 26) = culture 6895. See pages

15. Progeny of plant 6895A-1 (Y Spm/y +) = culture 7260, table 43

16. Progeny of plant 6895B-3 (Wx Spm/ wx +) = culture 7261, table 44

17. Progeny of plant 6704B-4 (Y Spm/y +) = culture 6888, table 45

18. Progeny of plant 6629A-5 (Y Spm Spm/y + + plus 1 Spm, not linked to Y) = cultures 6671, 6672, table 46

19. Progeny of plant 6671F-2 (Wx +/wx Spm) = culture 6873, table 47

20. Progeny of plant 6666C-2 from first ear of main stalk. See Table 26 = culture 6869, table 48

21. Progeny ofplant 6665G-16 (Y/y; 1 Spm) (See table 24) = culture 6866, table 49

22. Progeny of plant 6665G-21 (Y/y; 1 Spm) (See table 24)

From self-pollinated ear of tiller = culture 6863, table 50
From testcross ear = culture 6867, table 50

23. Progeny of plant 6665E-10 (Y/y; 2 Spm) (See table 26)

From first ear, main stalk = culture 6864, table 51
From ear of tiller = culture 6865, table 51

24. Progeny of plant 6629B-5 (y/y; Pr + +/pr Spm Spm)

From first ear, main stalk = culture 6683, tables 52 and 53
From second ear, main stalk = culture 6684, table 54
From ear of tiller = culture 6685, tables 52 and 53

25. Progeny from ear of tiller of plant 6683D-2 (Pr +/pr Spm) = culture 6878, table 55

26. Progeny from ear of tiller of plant 6685F-3 (Pr +/pr Spm) = culture 6882, table 56

27. Progeny ~~from~~ plant 6685G-2 (Pr Spm/Pr +) = culture 6875, table 57

28. Progeny of plant 6684D-1 (Pr Spm/pr +)

From pollen = cultures 6880 and 6881, table
From self-pollinated ear of tiller = culture 6879, table

29. Progeny of plant 6680F-4 (See text, page) = culture 6874, table

30. Progeny of plant 6703E-10 (See text, page) = culture 6876, table

31. Progeny of plant 6680C-2 (See text, page) = culture 6861, table

32. Progeny derived from self-pollinated ear of plant 6665G-13 (Y Spm/y +) (See table 24) = culture 6862, table

Figure 3

Constitution of plants in cultures 6683 and 6685

1. Pr/Pr; 1 Spm

   Plants in culture 6683: D-1, [redacted], E-13
   Plants in culture 6685: F-1 tiller ear, G-2, H-6

2. Pr/Pr; 2 linked Spm

   Plants in culture 6683: D-4, D-5, E-7
   Plants in culture 6685: F-1 first ear of main stalk, H-3

3. Pr/Pr; 2 linked Spm plus 1 Spm, not linked to others

   Plant 6683C-4

4. Pr + +/pr Spm Spm

   Plants in culture 6683: A-2, C-1, C-2, C-3, D-2 ear of main stalk, E-9, E-10
   Plants in culture 6685: F-5, G-1, H-4, H-9, H-14, H-15, H-17, H-18, H-20, H-21, H-25

5. Pr +/pr Spm plus 1 non-linked Spm

   Plant 6683E-4

6. Pr +/pr Spm

   Plants in culture 6683: D-2 ear of tiller, D-3, E-8
   Plants in culture 6685: F-3, F-4, G-3 first ear main stalk, H-5, H-10

7. Pr/pr; 1 Spm not linked with pr or very loosely linked with it.

   Plant 6685H-24

Figure 4

Constitution of plants in culture 6684

1. Pr Spm/pr +

   Plant 6684D-1

2. Pr Spm Spm/pr + +

   Plants D-2, D-3, E-5, E-16

3. pr/pr; 2 linked Spm

   Plants 6684A, E-8, E-9, E-11

4. pr/pr; 1 Spm

   Plants 6684E-2, E-3, E-4, E-12, E-13, E-15

Figure 5

Summer 1954

Plant 6683B-2 ♀ x 6641A-5 (See table 19) ♂

a_1^{m-1} (state 5719A-1) Sh_2/a_1 sh_2 — a_1^{m-1} (state 5719A-1) $Sh_2/$ a_1^{m-1} (state 5719A-1) Sh_2

Pr Spm-w/Pr + — pr/pr

Y/Y — Y/Y

Wx/wx — wx/wx

← Progeny grown in summer of 1955 under culture number 6888: Plants either a_1^{m-1} Sh_2/a_1^{m-1} Sh_2 or a_1^{m-1} Sh_2/a_1 sh_2

6888 A and B = plants derived from uniformly pale colored, Pr, Y Wx kernels (see table 63)

6888C = Plants derived from colorless kernels with few A_1 dots, Pr, Y, Wx (see table 64)

6888D = Plants derived from colorless kernels with few A_1 dots, Pr, y, Wx (see table 64)

1. All but 1 plant in culture 6888 was crossed by one of four plants in culture 6861

Constitution of plants in culture 6861: All were a_1 sh_2/a_1 sh_2, y Spm-s/y +, Wx/Wx

Plants 6861- 1 ~~and 8 were~~ was Pr/pr

Plants 6861-5, -7 and -8 were pr/pr

Plant 6861-1 crossed to plants 6888A-1, B-3, C-1, C-3 2nd ear main stalk, D-4

" 6861-5 crossed to plants 6888A-4, C-2, C-3 1st ear main stalk, C-4, C-5 1st and 2nd ear, main stalk, D-1, D-3, D-5

" 6861-7 crossed to plants 6888B-1

" 6861-8 crossed to plants 6888A-3, A-5, B-2, D-6

2. Plant 6857-1, a_1^{m-1} (state 5718) Sh_2/a_1^{m-1} (state 5718) Sh_2, pr/pr, y/y, wx/wx, crossed to plant 6888D-2 (see [illegible] page)

Figure 5 (continued)

Progeny of plants in culture 6888 grown in the summer of 1956

1. Culture 7262 from kernels on ear of plant 6888C-3 ♀ (1st ear, main stalk) x 6861-5 ♂ (see above for constitution)
   $\underline{a_1}^{m-1}$(state 5719A-1)$\underline{Sh_2}/\underline{a_1}^{m-1}$(state 5719A-1) $\underline{Sh_2}$
   $\underline{Pr}$ $\underline{Spm}$-$\underline{w}/\underline{pr}$ +
   $\underline{Y}/\underline{y}$

   7262A: From kernels that were uniformly pale colored, $\underline{Sh_2}$, $\underline{Pr}$, $\underline{y}$
   7262B: From kernels that had many $\underline{A_1}$ spots in colorless background, $\underline{Sh_2}$, $\underline{Pr}$, $\underline{Y}$ (see figure 7)
   7262C: From kernels that were colorless with few $\underline{A_1}$ spots, $\underline{Sh_2}$, $\underline{Pr}$, $\underline{Y}$ (see figure 6 and table 65)
   7262D: From kernels that were cololrless with few $\underline{A_1}$ spots, $\underline{Sh_2}$, $\underline{Pr}$, $\underline{y}$ (see figure 6 and table 65)

2. Culture 7263 from kernels on ear of plant 6888C-3 ♀ (second ear, main stalk) (see above for constitution) x 6861-1 ♂ (see above for constitution).
   7263A: From kernels that had many dots of $\underline{A_1}$ in colorless background, $\underline{Pr}$, $\underline{Y}$ $\underline{Sh_2}$ (see figure 7)
   7263B: " " " " " " " " " " , $\underline{Pr}$, $\underline{y}$ $\underline{Sh_2}$ (see figure)
   7263C: From colorless kernels with few $\underline{A_1}$ dots, $\underline{Pr}$, $\underline{Y}$ $\underline{Sh_2}$, (see figure 6 and table 65)
   7263D: " " " " " " " , $\underline{Pr}$, $\underline{y}$ $\underline{Sh_2}$, (see figure 6 and table 65)

3. Culture 7264 from kernels on ear produced by cross of plant 6888D-2 ♀ x 6857-1 ♂ (see above for constitution).
   $\underline{a_1}^{m-1}$(state 5719A-1) $\underline{Sh_2}/\underline{a_1}^{m-1}$(state 5719A-1) $\underline{Sh_2}$
   $\underline{Pr}$ $\underline{Spm}$-$\underline{w}/\underline{pr}$+
   $\underline{Y}/\underline{y}$
   $\underline{Wx}/\underline{wx}$

   7264A: From kernels that were uniformly pale colored, $\underline{Sh_2}$, $\underline{Pr}$, $\underline{Wx}$ (see text p. 700)
   7264B: From kernels that were colorless with few $\underline{A_1}$ dots, $\underline{Sh_2}$, $\underline{Pr}$, $\underline{Wx}$ (see figure 6 and table 65)

Figure 6

Constitution of plants in cultures 7262 to 7264 having Spm-w but no Spm-s. The types of kernels appearing on the testcross ears of these plants are entered in table 65.

Pr Spm-w/pr + : Plants 7262C-1, C-2, D-1, D-2, D-4
7263C-2, C-4, C-6, D-1, D-2
7264B-1 to B-10

Pr +/pr Spm-w : Plants 7263D-3, D-4

Pr/pr; 1 Spm-w : Plants 7262C-5, C-7

Pr/Pr; 1 Spm-w : Plants 7263C-1, C-3

Figure 7

Constitutions of plants having Spm-s in cultures 7262 and 7263

No Spm-w in plant (see table 66)

1. Y +/y Spm-s; Pr/Pr Plant 7263A-5
   Pr/pr Plants 7262B-4; 7263A-1, A-4, A-6, A-7

2. Y +/y Spm-s plus 1 Spm-s; Pr/Pr Plant 7263A-3

3. Y +/y Spm-s; ~~Pr Spm-s/pr +~~ plus 2 Spm-s; Pr/Pr Plant 7262B-2

4. y/y; 1 Spm-s; Pr/Pr Plant 7263B-6
   Pr/pr Plants 7263B-3, B-9

5. y/y; 2 Spm-s; Pr/pr Plant 7263B-2

Spm-w present in plant

1. Y +/ y Spm-s; Pr Spm-w/pr + Plants 7262B-1, B-3, B-5; 7263A-8 (see table 67)

2. Y/y; 1 Spm-s; Pr Spm-w/pr + Plant 7263A-2 (see table 67)

3. y/y; 1 Spm-s; Pr Spm-w/ pr + Plants 7263B-1, B-4, B-8 (see table 68)

4. y/y; 2 Spm-s; Pr Spm-w/pr + Plant 7263B-7 (see table 68)

Photographs

1. States of $q.m$ with + without Spin - Bernes
2. States of $q_2.m$ " " " - Bernes.
3. The Interfer of Spin + $q.m$ effects - Bernes

Table 1. Crosses of plants in culture 7109 that were a_2 w - BT/ a_2 bt tester plants appearance of pigmented ears produced
squash stocks for a_2 and bt* and having no spun.

Phenotype of kernels on ear 1958

Plant Number	Part of plant Tested	Colored kernels in colorless background BT	bt	Colorless BT	bt	Culture numbers †
7109B-1	Ear, main stalk	101	9	19	0	6 133 7456
	Ear, tiller - 1	99	3	85	2	8 217 7306
	" " - 2	90	8	95	2	4 145 7307
	" " - 3	121	5	128	3	7 234
pollen of 7109B-2	main stalk					
7109B-2	Ear, main stalk	123	13	114	4	19 221 7309
	Ear, tiller - 2	124	8	133	8	22 251
	pollen, main stalk	77	7	91	3	12 185 7310, 7311
7109C-1	Ear, main stalk	142	7	81	6	10 216
	Ear, tiller - 1	91	5	69	2	11 156
	" " - 2	124	4	125	7	17 233
	" " - 3	73	5	78	2	11 168
7109C-2	Ear, main stalk	168	13	81	5	23 271
	" tiller - 1	134	7	120	9	15 222
	pollen, main stalk	176	7	153	12	23 337
7109C-3	Ear, main stalk	214	15	7	1	12 228
	" tiller - 1	127	4	111	4	7 243
	" " - 2	114	2	105	3	5 226
	pollen, main stalk	77	4	38	0	5 137
7109C-4	Ear, main stalk	127	7	96	3	12 222 7455

* On ears that gave clear cut ratios of 1 pigmented to 1 nonpigmented kernel in the a_2 w - cross, clusters of kernels, nearly all of the pigmented kernels had a phenotype resembling that produced by a nonsense #2 gene. On the ears in which the pigmented classes but misplaced the ratio of clear cut nonsense to missense kernels were "appreciably modified". See text for discussion of these pigment alterations in this class of kernels.

† Culture numbers given to plants grown from kernels in the underlined classes the following year.

Table 2. A

A. Tests of Spm activity in progeny derived from kernels on the first ear of main stalk of plant 7109B-1.

Plant no.	Spm location in plant	Spm activity in cells giving rise to Ear-I main stalk	Ear-II main stalk	Ear of tiller-1	Ear of tiller-2	Ear of tiller-3	Pollen
Year 1956							
7109B-1	W++/ wx Spm	d		+	+	+	main stalk: + ear −
Year 1957							
7456B-5	W++/ wx Spm	−		d	d		
" C-1	Wx Wx; 1 Spm	−		d			
" C-2	W++/ wx Spm	−	vd				
" C-3	W++/ wx Spm	−	vd	d	d	d	
" C-4	W++/ wx Spm	−	−	−			d
" D-1	W++/ wx Spm	−	−				
" D-2	(W++/ wx Spm)	vd	−	d	d		
" D-3	(W++/ wx Spm)	−					
" D-4	Wx Wx; 1 Spm	vd		vd	d		
" D-5	W++/ wx Spm	−	−	vd	d	d	d
" D-7	W++/ wx Spm	−		vd	vd		d
" E-2	W++/ wx Spm	−					vd
Year 1958							
7600 (	From kernels on tiller-1 ear of Plant 7456C-3)						
1	W++/ wx Spm	−					
2	Wx Wx; 1 Spm	vd					
3	W++/ wx Spm	−	−				
4	W++/ wx Spm	(+−)					
5	W++/ wx Spm	−					
6	Wx Wx; 1 Spm	−	−				
7	W++/ wx Spm	−	−				
8	Wx Wx; Spm	−					
9	W++/ wx Spm	−	−				
11	W++/ wx Spm	−	−				
12	W++/ wx Spm	−	vd				
7598 (	From kernels on first ear, main stalk, of plant 7456 D-5)						
7	W++/ wx Spm	vd					
8	Wx Wx; 1 Spm	−					
7599 (	From kernels on ear produced from cross with pollen of plant 7456 D-5)						
A-1	W++/ wx Spm	−					
2	W++/ wx Spm	−	d				
3	W++/ wx Spm	d					
4	W++/ wx Spm	−					
5	Wx Wx; 1 Spm	−					
6	W++/ wx Spm	−	−				
B-1	W++/ wx Spm	vd	−	d			
2	W++/ wx Spm	vd					
3	W++/ wx Spm	d					
4	W++/ Wx Spm	−					

Table 2 A, Continued

1960	Spun number and location	First ear main stalk ♀	First ear main stalk ♂	Second ear main stalk ♀	Second ear main stalk ♂	Ear Tiller-1 ♀	Ear Tiller-1 ♂	Ear Tiller-2 ♀	Ear Tiller-2 ♂
	(From First ear, main stalk of plant 7599 B-4)								
7780 A-1	wx Spun / wx Spun	−	+						
2	" " / " "	−	+						
3	" " / " "	−	d						
4	" " / " "	−	+			+	+	+	+
5	" " / " "	−	d						
6	" " / " "	−	+			d	+		
7	" " / " "	−	(+-)			+	?		
8 9	" " / " "	−		−	+	d −	+ +		
10		-	d			−	+		
7780 B-1	wx + + / wx Spun		d				+		+
2	" / "		+				+		
3	" / "								
4	" / "		dd		+		+		
5	" / "		+						
6	" / "		d		d		+		+
7	" / "		+		+				
8	" / "								
9	" / "				d				
10	" / "		d				+		+

Table 2 B Activity of Spm, derived from tiller-1 of plant 7109B-1, in successive generations.

		Spm activity in cobs giving rise to					
		First Ear, main stalk	Second Ear, main stalk	Ear of tiller-1	Ear of tiller-2	Ear of tiller-3	Pollen
Year 1957							
7306 (	from kernels on tiller ear of 7109B-1, see table 1)						
A-1	w+ + / en Spm	+	+	+			
2	w+ + / en Spm	−					
T 3	w+ / en+ ; 1 Spm	−		+			
4	w+ + / en Spm	+					
5	w+ + / en Spm	+					
6	w+ + / en Spm	+	+				
T B-1	w+ + / en Spm plus 2 Spm	+ + *	+ + *	+ + *	+ + *	+ + *	[02 clr. 5 Spm]
T 2	w+ + / en Spm plus 1 Spm	++		++			
Year 1958							
7560 (	From kernels on ear of main stalk of plant 7306 A-1						
1	w+ Spm / en +	+		+	+		
2	(w+ Spm / en +)	−					
T 3	w+ en ; 1 Spm	vcl	vcl	+			
T 4	w+ en ; 2 Spm	+ +	+ +				
5	w+ Spm / en +	+					+ Cyd −
T 6	w+ en ; 1 Spm	+					

Table 2 C. Behavior in successive generations of Spm derived from tiller-2 of plant 7109 B-1

Year 1957			Spm activity in ears given here to					
			First Ear, main stalk	2nd Ear, main stalk	Ear, tiller-1	Ear, tiller-2	Ear, tiller-3	Pollen
7307 B- (derived from kernels on ear of tiller-2, table 1)								
A-1	wx+ wx+ ; Spm		d					
2	wx++/ wx Spm		+		+	+		
3	wx++/ wx Spm		+ (7561)	+				
4	wx++/ wx Spm		+		+			
5	wx++/ wx Spm		+ (7562)	+	+			
6	wx++/ wx Spm		+					
B-1	wx++/ wx Spm		+	+	+			
2	wx++/ wx Spm Spm		+ *	+ * (7572)	+ *			
T 3	wx++/ wx Spm plus 1 Spm		+ +	+ +	+ +	+ +	+ +	
T 4	wx+/ wx Spm plus 1 Spm		+ +		+ +	+ +		
Year 1958								
7561 C	From kernels on	ear	of main stalk of plant 7307 A-3)					
1	(wx Spm / wx +)		−					
2	wx Spm / wx +		vd	vd				
3	wx Spm / wx +		+	+				
4	wx Spm / wx +		(+ −) (7577)	−	+			
5	wx Spm / wx +		+					
7562 (	From kernels on	first ear,	main stalk, of plant 7307 A-5)					
1	wx Spm / wx +		+	+				
2	wx Spm / wx +		+					
3	wx Spm / wx +		−		+			
7572 (	From kernels on	second ear,	main stalk, of plant 7307 B-2)					
1	wx++/ wx Spm		+					
2	wx++/ wx Spm		+		+			
3	wx++/ wx Spm		+	+				
4	wx+wx+ ; Spm		vd					
5	wx++/ wx Spm		vd	d				
6	wx++/ wx Spm		+					
7	wx++/ wx Spm		+					

Table 2-C continued

Year				Ears						
1960				I	II	E-1	E-2	E-3		
7777	(From Kernels on	first ear,		main stalk,		plant 75	61-4			
A-1	W+Spm)	wt +		(+-)	(+-)	+	(+-)	+		
A-2	" "	"		+		+				
A-3	" "	"		(+-)						
A-4	" "	"		+		+				
B-1	" "	"		d		+				
B-2	" "	"		d		+	+			
B-3	" "	"		d						
B-4	" "	"		d	d	+				
C-1	" "	"		—						
" 2	" "	"		vd		(+-)				
" 3	" "	"		vd		vd				
" 4	" "	"		—						
D-1	" "	"		—		—	—			
" 2	" "	"		—						
" 3	" "	"		—		—				
" 4	" "	"		—		—				

Table 2 D. Behavior of Spm in successive generations derived from pollen of plant 7109B-1

Year 1957 Culture number	Spm number and description		Kernel color	Ear 2nd main stalk	Ear tiller 1	Ear tiller 2	Ear tiller 3	pollen
7312	(From cross of 7109B-1 ♂ to ♀ a_2 a_2^{m-1} (clon x) B_2 I / a_2 bt wx + wx + no Spm ♀)							
1	wx tested		−					
3	" "		−					
4	" "		+					
5	wx + / wx Spm		+					
6	wx + / wx Spm		vd		vd	d		
7312	(From cross of A_2 B_2 I / a_2 bt wx wx no Spm ♀ × 7109B-1 ♂)							
A-1	not tested		vd					
2	wx + / wx Spm		vd		+			
B-1	" " "		d					
2	not tested		vd					
3	wx + / wx Spm		vd					
4	wx wx, 2 Spm I;	wx + / wx Spm I	+		+	+		
5	wx wx 1 Spm		+	+				
Year 1958								
7547	(From 7312-5 ♀ × a_2 bt / a_2 bt wx / wx no Spm ♂)							
A-1	wx Spm / wx +		−	−	+	d		
2	wx Spm / wx +		+	× 7535-3	+			
3	wx Spm / wx +		+					
(4	wx Spm / wx +)		−					
5	(wx Spm / wx +)		−	vd				
B-	wx Spm / wx +		−		d			
C-1	wx Spm / wx +		d					
2	wx Spm / wx +		+					
7582	(From 7312-6 ♀ × a_2 bt / a_2 bt, wx wx no Spm ♂							
A	wx + / wx Spm		−		−			
B-1	wx + / wx Spm		−					
B-2	wx + / wx Spm		−	−				
B-3	" " "		−					